

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listing, of claims in the application:

1. (Currently Amended) A method for improving throughput in continuous electrodialysis processes to create product, the method comprising automatically neutralizing byproduct acid generated in acid loop solutions residing in an electrodialysis stack by adding a buffer in strong acid/weak base configurations wherein the buffer comprises components of the product or neutralizing byproduct base generated in base-loop solutions residing in an electrodialysis stack by adding a buffer in weak acid/strong base configurations wherein said buffer keeps the solutions in the stack within 2 pH units and also keeps the stack between pH 3 and pH 10.

2. (Previously Presented) The method as recited in claim 1 wherein the process involves the formation of an acidic solution in the electrodialysis stack and said buffer is added to the solution.

3. (Previously Presented) The method as recited in claim 1 wherein the process involves the formation of a basic solution and said buffer is added to the solution.

4. (Cancelled)

5. (Previously Presented) The method as recited in claim 1 wherein the buffering agent is premixed with a solution situated remotely from the stack.

6. (Original) The method as recited in claim 1 wherein a buffering agent is added at ambient temperature.

7. (Original) The method as recited in claim 1 wherein the electrodialysis process operates at a temperature which ranges from about 15⁰C to 40⁰C.

8. (Cancelled)

9. (Previously Presented) The method as recited in claim 1 wherein the anionic and cationic moieties of the buffer are selected to minimize contamination of the product.

10. (Original) The method as recited in claim 1 wherein for an electrodialysis solution that will become acidic, a buffer pair is created by adding an acid and a metal hydroxide to the "acid-loop" stream.

11. (Original) The method as recited in claim 1 wherein for an electrodialysis solution that is already acidic, a buffer pair is created by adding a metal salt of the acid's conjugate base to the "acid-loop" stream.

12. (Original) The method as recited in claim 1 wherein for an electrodialysis solution that will become basic, a buffer pair is created by the addition of a base and its conjugate acid to the "base-loop" stream.

13. (Original) The method as recited in claim 1 wherein for an electrodialysis solution that is already basic, a buffer pair is created by the addition of an acid to the "base-loop" stream that contains, as its conjugate base, the base present in the ED electrolyte solution.

14. (Currently Amended) A process for preventing pH swings of cationic and anionic electrodialysis membranes in electrodialysis cell compartments to create product, the process comprising controlling the pH of byproduct acid in an acid-loop by adding a buffer wherein the buffer comprises components of the

product or controlling the pH of byproduct base in a base-loop solution by adding a buffer wherein the buffer comprises components of the product, wherein said buffer maintains solutions in the cell to within two pH units and also maintains the stack between pH 3 and pH 10.

15. (Previously Presented) The process as recited in claim 14 wherein a buffer solution is a means of maintaining the pH of the ED acid solution to within one pH unit.

16. (Original) The method as recited in claim 15 wherein the buffer solution is supplied to the cell compartments via a tank external to the cell compartments.

17. (Original) The method as recited in claim 14 wherein controlling the pH in the acid-loop is a means of protecting bipolar membranes and their active sites.

18. (Original) The process as recited in claim 15 wherein the buffering solution is added at ambient temperature.

19. (Original) The method as recited in claim 14 wherein the electrodialysis cell operates at a temperature which ranges from about 15⁰C to 40⁰C.

20. (Previously Presented) The method as recited in claim 14 wherein a buffer solution is added to the stack to maintain the pH of solutions within the stack to within 1 pH unit of said desired pH.

21. (New) The method as recited in claim 1 wherein the stack has an effective cell surface area of 0.4 m² (4000 cm²).

22. (New) The process as recited in claim 14 wherein the stack has an effective cell surface area of 0.4 m^2 (4000 cm^2).